

REMARKS

This is in response to the Office Action dated January 5, 2005. Claims 18-19 are allowed, Claims 14, 5, 8, 9 and 11-13 were objected to, and the remaining claims are rejected. Reconsideration and withdrawal of the rejections is requested in view of the accompanying amendments and comments. One new claim is added.

I. Objections To Specification

The specification is amended to delete "device" in paragraph 40.

The specification was objected to because the number 32 was used to refer to a cylinder, a chamber, chambers or cylinders, and cylinder bore. Each of those terms is an apt descriptive term for the same part of the rotary engine described in the specification. A person skilled in the art would understand each of those terms to be interchangeable in the context in which they are used in the present specification. No correction is believed necessary.

That there is no need to change is illustrated by *Ex parte Asano*, 201 USPQ 315 Bd. Pat. Appeals 1978). In *Ex parte Asano*, the Patent Office reviewed an application that was rejected for containing 19 inconsistent features in the drawings. These alleged errors included drawings showing two stacks in one figure, three stacks in another figure, and no stacks in another figure. 201 USPQ at 318 (items 11-12). The Patent Office reversed the rejection. The errors were viewed as "minor drafting errors or figure inconsistencies." These 19 errors were "inconsequential and do not singly or in toto constitute errors which are sufficient to support a rejection under 35 USC 112, first or second paragraphs." *Id.* The alleged errors in the present application are minor compared to those in *Asano*, and the use of any different terminology is believed to be understood by one skilled in the art when the terms are read in the context of the application in which they occur.

The specification was objected to because the number 8 was used to refer to a fuel device and a fuel injector. The fuel injector is a specific type of fuel device. Each of those terms is an apt descriptive term for the same part of the rotary engine described in the specification. A person skilled in the art would understand each of those terms to be interchangeable in the context in which they are used in the present specification. No correction is believed necessary.

The specification was objected to because the number 6 was used to refer to annular ring seals, ring seals and seals. Each of those terms is an apt descriptive term for the same part of the rotary engine described in the specification. A person skilled in the art would understand each of those terms to be interchangeable in the context in which they are used in the present specification. No correction is believed necessary.

The specification was objected to because the number 21 was used to refer to a recess and a fluid passage. The recess functions as a fluid passage. Each of those terms is an apt descriptive term for the same part of the rotary engine described in the specification. A person skilled in the art would understand each of those terms to be interchangeable in the context in which they are used in the present specification. No correction is believed necessary.

II. Obviousness Rejections of Claims 1-2 and 10

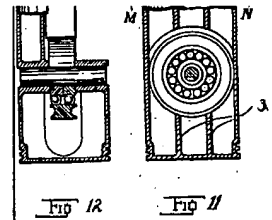
Claims 1-2 and 10 were rejected as obvious over the combination of Paul (5,209,190) in view of Blesser (1,798,866). Paul is cited for the bulk of the claim features, including a stationary cam track, but it admittedly “fails to disclose a journal bearing within the roller and the structural details of the journal bearing” for the pistons which travel on the cam track. Blesser discloses a rotating cam track and is cited for a journal bearing inside its cam-track rollers 5,6, with the journal bearing comprising a disk supported by a shaft fastened to opposing sides of the piston, as shown in Figures 10-11.

Claim 10 defines a connecting rod with a curved surface thereon abutting a circular surface on the guide track that encircles the rotational axis. Claim 10 is amended to clarify the orientation of the circular surface abutted is coaxial with a surface located in a plane that is coaxial with the rotational axis. The surface in Paul does not meet this requirement; the abutted surface is orthogonal to the rotational axis. Thus, reconsideration and allowance of Claim 10 is respectfully requested.

Further, Blesser discloses a ball bearing, not a journal bearing. Blesser describes the rollers 5, 6 as follows:

Rollers -5- and -6- of pistons -3- are mounted in **ball bearings** so as to reduce friction as they ride the face -20- of cam -2- while rollers -5- and -6- are so mounted as to substantially engage this face of the cam at all times in the turning of the cam which rotates shaft -1-. [pg. 3, lines 18-24 (emphasis added)].

These ball bearings are seen in the Figures 10-12, with Figures 11-12 shown here for ease of reference. The small circles represent the balls within the ball bearing.



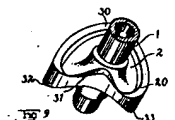
The Examiner cannot be characterizing the shaft through the center of the ball bearing as a journal bearing. There is nothing in the Blesser patent to teach that the inner race of the ball bearing rotates around the shaft through the piston. There is nothing in the Blesser patent to teach that a lubricant is placed between the shaft and the inner race so those parts act as a journal bearing. Further, the Examiner has not made any argument, let alone made any showing that the shaft and inner race of the ball bearing “inherently” act as a journal bearing.

Moreover, a ball bearing is designed to have the balls rotating. If the inner race rotated then it would wear on the shaft about which the inner race rotated and that would cause wobble of the bearing and degrade the performance of the balls within the bearing. Thus, at least one, if not both races of a ball bearing are pinned to the surrounding structure in order to ensure the balls carry the rotational load. Fixing the races also ensures the balls do not stop rotation as the curvature of the balls creates high point contact loads with the mating bearing races and constant shifting of those high loads across these contacting surfaces is needed to help avoid damage to the contacting surfaces.

In the Blesser patent the outer race rotates along the cam track. Thus, the inner race of Blesser must be fixed to the shaft in order to ensure the balls rotate, to ensure the rotational loads are carried by the balls, and to ensure normal operation of the ball bearing. Blesser thus does not disclose a journal bearing.

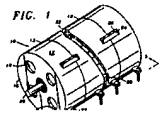
Because the claimed journal bearing is not provided even if Blessing and Palmer are combined, the combination does not disclose all of the claim elements. Reconsideration and withdrawal of the obviousness rejection is thus respectfully requested.

Further, Blesser describes a novel, rotating cam track 2, shown to the right. Pg. 2, lines 27-32 (novel), lines 45-46 (cam rotating with shaft). Two rollers engage opposing sides of this specially shaped, rotating track.



In contrast, the patent to Paul has a non-rotating, stationary track formed by a slot cut in the housing. The track has a sinusoidal shape, and a single, cantilevered roller fits inside the

slotted track. This is easily seen in Figure 1, shown to the right. The two cam followers are used for very different purposes, in fundamentally different motor designs. Each cam follower is configured for its specific and very different application, and there is no showing that the design considerations of one application make the cam follower design suitable for the other, very different application.



Even if one argues that the references suggest trying Blesser's bearing in Paul's motor, a suggestion to try something does not meet the requirements for obviousness. *In re O'Farrell*, 853 F.2d 894, 7 USPQ2d 1673 (Fed. Cir. 1988) ("Obvious to experiment is not a proper standard for obviousness.").

III. No Proper Suggestion To Combine Blesser & Paul

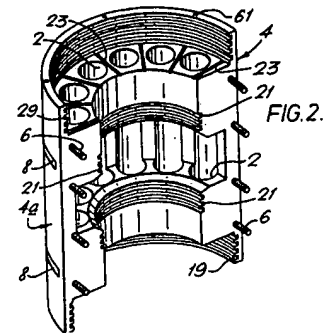
The stated reason for using Blesser's bearing is to improve the efficiency of the engine of Paul. Office Action at 5, 1st paragraph. There is no basis for this assumption. First, there is no showing whatsoever that the proposed change would improve the efficiency of Paul's engine. Indeed, Blesser issued in 1929, over 75 years ago. A person skilled in the art would not look to a bearing construction used 75 years ago and expect it to increase the efficiency of Paul's rotary device which was patented 12 years ago.

Moreover, Paul uses a rotating block with a sinusoidal shaped cam slot cut in a stationary housing and a single cam follower for each piston. Abstract ("responsive to the follower in the sinusoidal track"). Blesser uses a rotating cam track with two cam followers on opposing sides of the rotating cam track. The constructions are vastly different. The vast difference in construction provides no basis for suggesting any improvement in efficiency by taking one isolated feature from Blesser and using it in Paul.

Further, the difference in motor constructions can be expected to cause very different loads on the bearings used in the cam followers. This is especially so when Blesser uses a long and short cam with two cam followers per piston (Pg. 2, lines 28-32), while Paul uses a single cantilevered cam follower as seen in the above figures. In short, the vast differences give no basis for any speculation in increased efficiency. A proper suggestion is essential to any rejection. As there is no proper suggestion to combine, reconsideration and withdrawal of the rejection on Claim 1, and dependent Claims 2-3, and 6-7 is respectfully requested.

IV. Obviousness Rejection of Dependent Claims 6-7:

Dependent Claims 6-7 were rejected as Claim 1, further in view of the patent to Demopoulous (4,571,946). Demopoulous is cited as providing the seals defined in Claims 6-7. Demopoulous has six pistons reciprocating in cylindrical chambers, with each piston having a circular piston ring 12. Fig. 1. Demopoulous also has circular labyrinth seals 19/21 (Figs. 1-2) and radial seals 23 (Fig. 2). Col. 3, lines 10-21. Figure 2 is shown here for reference.



But Claims 6-7 also define “a plurality of curved linear seals extending between adjacent annular seals.” These seals are shown in the patent application at Figures 12a and 12c. No such seals are provided in Demopoulous. In fact no seals extend between the annular piston ring seals 12 of Demopoulous. Thus, even if the asserted patents are combined, they do not provide the claimed combination. Reconsideration and allowance of Claims 6-7 is requested on this additional basis.

V. Obviousness Rejections of Claims 14 & 16

Claims 14 and 16 were rejected as obvious based on Paul in view of Blessner and further in view of Palmer. Amended independent Claim 14 defines doubled headed pistons being connected by a connecting rod having a curved surface facing inward toward the rotational axis and abutting a cylindrical bearing surface of a stationary guide track fastened to a non-rotating housing within which the cylinder block rotates. The cylindrical bearing surface is coaxial with the rotational axis. Antecedent basis is found in part at paragraph 54, and Figures 4-5. \

This inward facing surface is not found in the asserted patents. The above comments on combining Paul and Blessner also apply here. Reconsideration and withdrawal of the rejections on independent Claim 14 and dependent Claim 16 are respectfully requested.

VI. Obviousness Rejection of Claim 15

Claim 15 was rejected as obvious over Paul, Blessner and Palmer. Claim 15 defines an annular seal on the pistons, and curved seals extending between adjacent edges of the annular seals. This is shown in the patent application at Figures 12a and 12c. Palmer does not show that, as discussed above in more detail regarding Claim 6. Reconsideration and withdrawal of the rejection of Claim 15 is requested for this additional reason.

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Response to Office Action of 01/05/2005
Attorney Docket: TBUEL-002A

VII. New Claim 20

One new dependent claim is added.

VIII. Conclusion

In view of the above comments and amendments, the claims are believed allowable and such allowance is respectfully requested.

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

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